



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,331	03/06/2007	Vittorio Orlandi	J1036.0016/P016	5103
24998 7590 09/14/2010 DICKSTEIN SHAPIRO LLP 1825 EYE STREET NW Washington, DC 20006-5403				
EXAMINER				
CULLER, JILL E				
ART UNIT		PAPER NUMBER		
2854				
MAIL DATE		DELIVERY MODE		
09/14/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/583,331

**Applicant(s)**

ORLANDI ET AL.

**Examiner**

Jill E. Culler

**Art Unit**

2854

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 May 2010.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-34 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 16 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/22)  
4) ☐ Interview Summary (PTO-413)  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_  
Paper No(s)/Mail Date \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 7, 21, 22, 28, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,688,222 to Cattaruzza et al. in view of U.S. Patent No. 6,298,779 to Gotanda et al.

With respect to claim 1, Cattaruzza et al. teaches equipment for printing on fabric, comprising a support, 2, driven such as to transport a sheet of fabric, at least one driven printing body, 11, in order to carry out the printing and a control and command unit operatively connected with each of said support and at least one printing body such as to detect electrical signals originating from said support and at least one printing body, turn said signals into numerical values representative of the status of their angular speed, compare said numerical values with a desired speed and send signals to said support and at least one printing body in order to correct any possible variations in said values. See column 3, lines 9-50 and Fig. 1.

Cattaruzza et al. does not explicitly teach that the control and command unit turns said signals into numerical values representative of both the angular speed and the torque moment, compare said numerical values with ratios of preset numerical

values of said angular speed and said torque moments and send signals to correct any possible variations in both values.

Gotanda et al. teaches a control and command unit which receives signals from rotating bodies in a printing apparatus, turns said signals into numerical values representative of both the angular speed and the torque moment, compares said numerical values with ratios of preset numerical values of said angular speed and said torque moments and returns signals to correct any possible variations in both values. See column 4, lines 41-65 in particular.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cataruzza et al. to include control for the angular speed and torque moment, as taught by Gotanda et al., in order to maintain efficient operation of the apparatus.

With respect to claim 4, Cataruzza et al. teaches that said support is driven by means of a motor, 5, and wherein said at least one printing body is driven by a motor, 6, 7. See column 3, lines 9-50 and Fig. 1.

With respect to claim 4, Cataruzza et al. teaches that said support is a cylindrical support represented by a press roller. See column 3, lines 9-50 and Fig. 1.

With respect to claim 7, Cataruzza et al. teaches that said at least one printing body comprises from two to twelve rotating engraved rollers operated individually and independently by motors. See column 3, lines 9-50 and Fig. 1.

With respect to claim 21, Cataruzza et al. teaches a process for the printing of fabric comprising the steps of: providing a fabric sheet; providing an equipment for

printing on fabric comprising a driven support, 2, for the transportation of said fabric and at least one driven printing body, 11; feeding said equipment with said fabric sheet; performing the printing on said fabric under the control and command of a control and command unit, wherein said control and command unit is operatively connected with said support and at least one printing body such as to detect electrical signals originating from said support and at least one printing body, turning said signals into numerical values representative of the status of their angular speed, comparing said numerical values with a desired speed and sending signals to said support and at least one printing body in order to correct any possible variations of said values which fall out with said ratios. See column 3, lines 9-50 and Fig. 1.

Cattaruzza et al. does not explicitly teach that the control and command unit turns said signals into numerical values representative of both the angular speed and the torque moment, compare said numerical values with ratios of preset numerical values of said angular speed and said torque moments and send signals to correct any possible variations in both values.

Gotanda et al. teaches a control and command unit which receives signals from rotating bodies in a printing apparatus, turns said signals into numerical values representative of both the angular speed and the torque moment, compares said numerical values with ratios of preset numerical values of said angular speed and said torque moments and returns signals to correct any possible variations in both values. See column 4, lines 41-65 in particular.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Cataruzza et al. to include control for the angular speed and torque moment, as taught by Gotanda et al., in order to maintain efficient operation of the apparatus.

With respect to claim 22, Cattaruzza et al. teaches that said control and command unit acts separately and independently on each motor which operates the corresponding rotating body of the equipment such as to make reference to the same electrical axis. See column 3, lines 9-50 and Fig. 1.

With respect to claim 28, Cattaruzza et al. teaches that the printing stage occurs by means of flexographic (ink) or serigraphic (colored paste) methods. See column 3, lines 9-50 and Fig. 1.

With respect to claim 31, although Cattaruzza et al. does not explicitly teach that printing takes place at a speed of up to 400 m/min on a sheet of wet or dry non-woven-fabric, it would have been obvious to one having ordinary skill in the art at the time of the invention that the optimum speed of the printing is dependent upon a variety of other process factors and can best be determined through routine experimentation.

With respect to claim 32, Cattaruzza et al. teaches a fabric obtainable by means of the process according to claim 21. See column 3, lines 9-50 and Fig. 1.

With respect to claim 33, Cattaruzza et al. teaches the fabric can have multicolor text and/or drawings. See column 3, lines 9-50 and Fig. 1.

Claims 3, 5-6, 8-9, 15-16, 24-26 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al. in view of Gotanda et al., as applied to claims 1, 2, 4, 7, 21, 22, 28, and 31-33 above, and further in view of U.S. Patent No. 6,427,586 to Takahashi.

With respect to claim 3, Cattaruzza et al. teaches all that is claimed, as in the above rejection, except that said driven support is provided with through holes which cooperate with holding means in order to hold the sheet of non-woven-fabric onto said support.

Takahashi teaches a printer having a driven support provided with through holes which cooperate with holding means in order to hold the sheet of non-woven-fabric onto said support. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cattaruzza et al. to include holes in the support, as taught by Takahashi, in order to more firmly hold the fabric onto the support.

With respect to claims 5-6, Cattaruzza et al. and Gotanda et al. teach all that is claimed, as in the above rejection, except that said support is a press belt, which is a perforated belt closed on itself.

Takahashi teaches a printer having a driven support which is a press belt, which is a perforated belt closed on itself. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to have a perforated

press belt for support, as taught by Takahashi, in order to more firmly hold the fabric onto the support.

With respect to claims 8-9, Takahashi teaches said holding means comprise suction fans having the function of sucking air from the outside of the support towards its inside through said through holes, wherein said suction fans are represented by fans. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

With respect to claims 15-16, Cattaruzza et al. and Gotanda et al. teach all that is claimed, as in the above rejection, except for guide means suitable to guide and support the inlet and outlet sheet of non-woven-fabric from said equipment, wherein said guide means are rollers individually and independently motor-driven by corresponding motors.

Takahashi teaches a printer having guide means suitable to guide and support the inlet and outlet sheet of non-woven-fabric from said equipment, wherein said guide means are rollers individually and independently motor-driven by corresponding motors. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to have guide means, as taught by Takahashi, in order to better move the fabric through the printer.

With respect to claims 24-26, Cattaruzza et al. and Gotanda et al. all that is claimed, as in the above rejection, except for an operation stage of holding means in order to hold the non-woven-fabric sheet onto the outer surface of the support, wherein said operation stage of the holding means is achieved by suction fans which, by sucking air from the outside towards the inside of the support through holes, hold the non-



woven-fabric onto said support, also comprising a control stage of the operation of the holding means by said control and command unit.

Takahashi teaches a printer having an operation stage of holding means in order to hold the non-woven-fabric sheet onto the outer surface of the support, wherein said operation stage of the holding means is achieved by suction fans which, by sucking air from the outside towards the inside of the support through holes, hold the non-woven-fabric onto said support, also comprising a control stage of the operation of the holding means by said control and command unit. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the process of Cattaruzza et al. to have the operation and control, as taught by Takahashi, in order to better transport the fabric through the printer.

Claims 10-14 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al. in view of Gotanda et al. and Takahashi as applied to claims 3, 5-6, 8-9, 15-16 and 24-26 above, and further in view of U.S. Patent No. 5,881,440 to Deeming et al.

Cattaruzza et al., Gotanda et al. and Takahashi teach all that is claimed, as in the above rejection, except that said suction fans are represented by pumps of the compressor or vacuum pump type, wherein said suction fans are connected to a water

separator in the form of a condenser or a distillatory that separates the water from the air by mechanical and physical action.

Deeming et al. teaches that in the manufacture of non-woven fabric it is desirable to transport the fabric on a belt through which the water can be separated by a vacuum. See column 2, lines 45-56.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to include well known apparatus for water separation, as taught by Deeming et al., in order to be able to make the fabric more suitable for the printing process.

Claims 17 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al., Gotanda et al. and Takahashi as applied to claims 3, 5-6, 8-9, 15-16 and 24-26 above, and further in view of U.S. Patent No. 5,312,500 to Kurihara et al.

Cattaruzza et al., Gotanda et al. and Takahashi teach all that is claimed, as in the above rejection, except wherein at least one pair, of said guide means are positioned at the ingoing non-woven-fabric into the printing stations and consist of widening means which allow increasing the height of the non-woven-fabric, comprising a widening stage in order to ensure the maintenance of the product height.

Kurihara et al. teaches that widening is a desirable function when working with a non-woven fabric. See column 14, lines 8-16.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to include structure for widening, as taught by Kurihara et al. in order to improve the quality of the non-woven fabric.

Claims 18-20, 23 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al. in view of Gotanda et al., as applied to claims 1, 2, 4, 7, 21, 22, 28, and 31-33 and further in view of U.S. Patent No. 6,024,018 to Darel et al.

With respect to claims 18-20 and 23, Cattaruzza et al. and Gotanda et al. teach all that is claimed, as in the above rejection, except for an image acquiring device, such as a digital camera or video camera, used to implement closed loop automatic control.

Darel et al. teaches a printer having an image acquiring device, such as a digital camera or video camera, used to implement closed loop automatic control. See column 5, lines 19-44 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to include digital video control, as taught by Darel et al. in order to maintain the process settings at optimum levels.

With respect to claim 29, Cattaruzza et al. and Gotanda et al. teach all that is claimed, as in the above rejection, except a dye control stage by the control and

command unit through the optimization of the characteristics of each dye, such as flow, pressure and viscosity, depending on the type of non-woven-fabric to be printed.

Darel et al. teaches a printer having a dye control stage by the control and command unit through the optimization of the characteristics of each dye, such as flow, pressure and viscosity, depending on the type of non-woven-fabric to be printed. See column 5, lines 19-44 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to include a dye control stage, as taught by Darel et al. in order to maintain the process settings at optimum levels.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al. in view of Gotanda et al. and Takahashi.

With respect to claim 34, Cattaruzza et al. teaches equipment for printing on non-woven-fabric, comprising a driven support so as to transport a sheet of non-woven-fabric, at least one driven printing body for implementing the printing and driven holding means which interact with said support in order to hold said sheet onto said support,.

Cattaruzza et al. does not teach the driven support is provided with through holes, or that both angular speed and torque moment of said support and said printing body are controlled in order to correct variations thereof that fall outside of predetermined numerical values

Takahashi teaches a printer having a driven support that is provided with through holes. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Cattaruzza et al. to have the support through holes, as taught by Takahashi, in order to better move the fabric through the printer.

Gotanda et al. teaches a control and command unit which receives signals from rotating bodies in a printing apparatus, turns said signals into numerical values representative of both the angular speed and the torque moment, compares said numerical values with ratios of preset numerical values of said angular speed and said torque moments and returns signals to correct any possible variations in both values. See column 4, lines 41-65 in particular.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cattaruzza et al. to include control for the angular speed and torque moment, as taught by Gotanda et al., in order to maintain efficient operation of the apparatus.

### ***Response to Arguments***

Applicant's arguments, filed May 6, 2010, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the additional prior art reference to Gotanda et al., which teaches control of both angular speed and torque moment in a printing apparatus.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill E. Culler whose telephone number is (571)272-2159. The examiner can normally be reached on M-F 10:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jec

/Jill E. Culler/  
Primary Examiner, Art Unit 2854